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(56) Documents cited

GB 2155168 A

GB 1314020 A

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US 4802233 A

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(58) Field of search

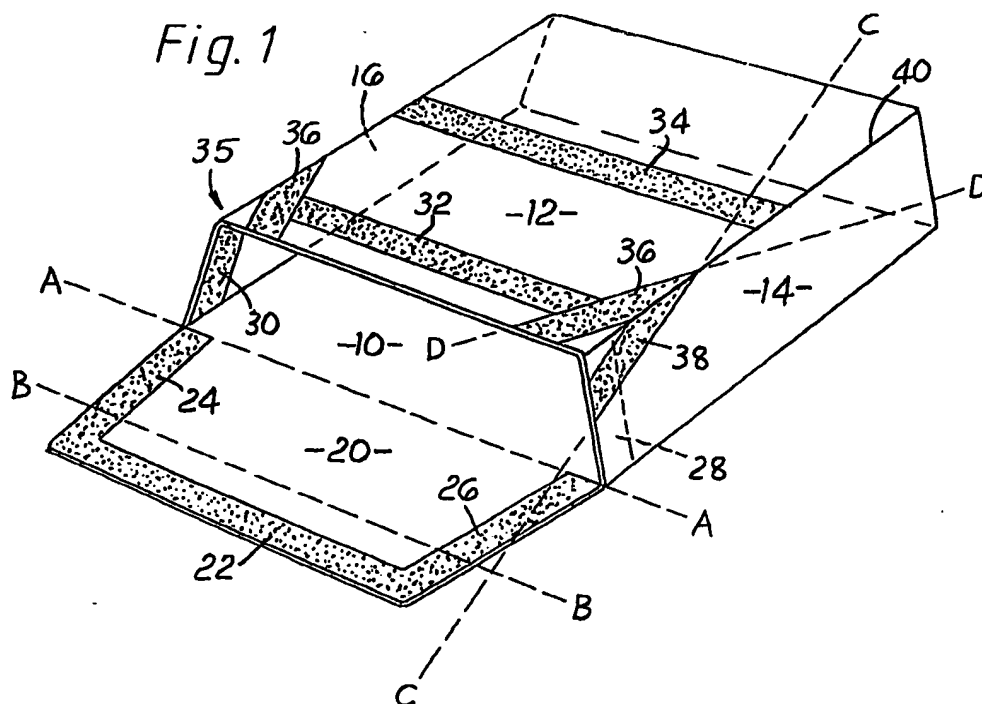
UK CL (Edition K) F4U U52B U52D

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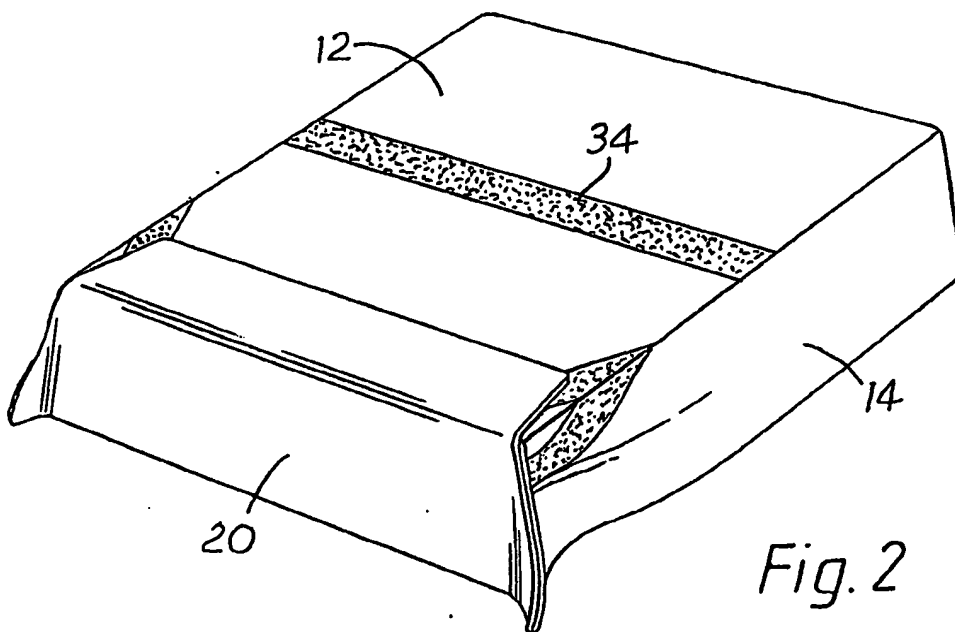
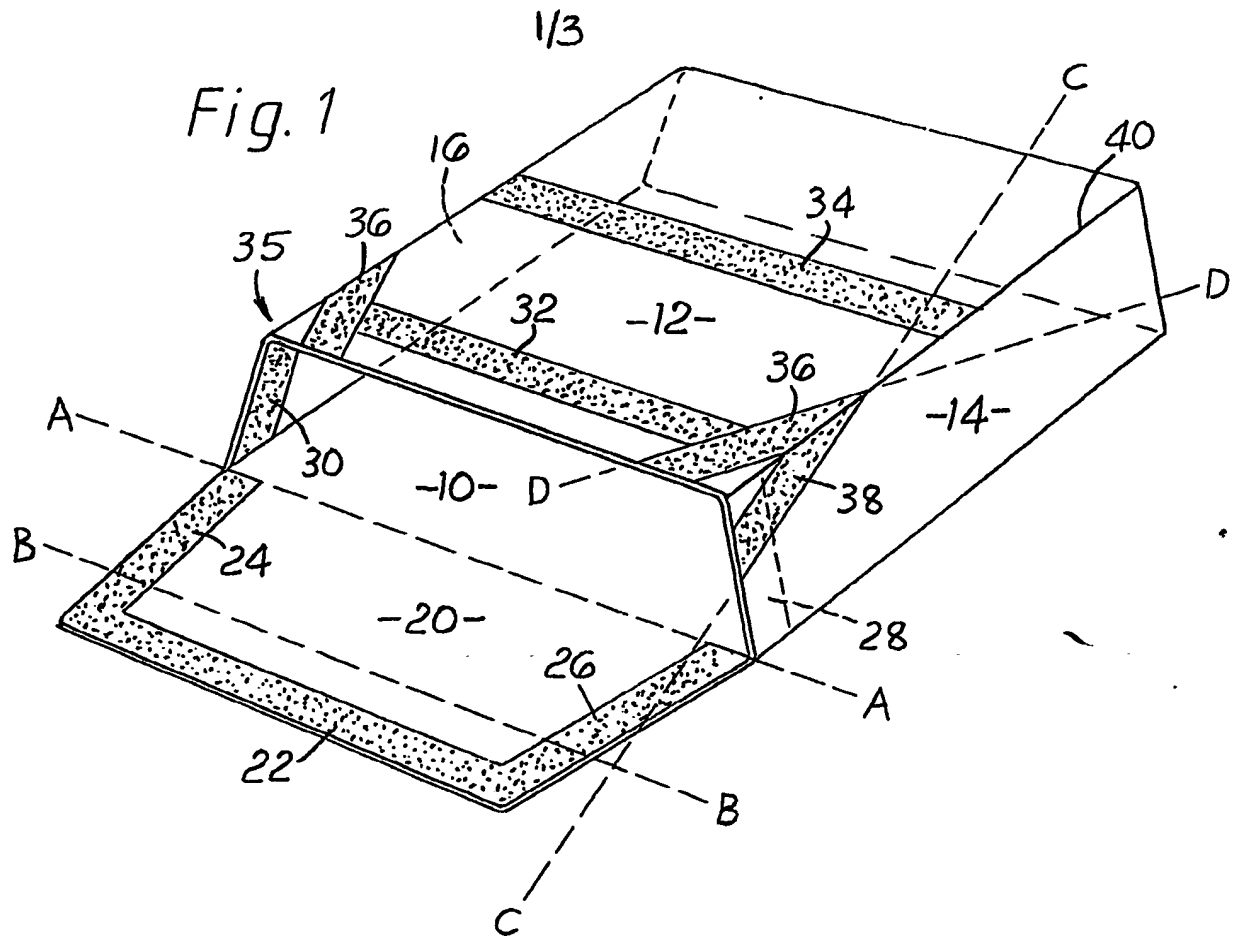
Online databases: WPI

(54) Insulated bag

(57) A hot food bag is made of porous material to vent steam and food vapours through the fabric, so that the bag can be sealed against normal ingress of cold air by strips of velcro material 24, 26 around a closure flap, which can cooperate to fix to like portions 30 inside the bag. A strip 22 can fix to either of parallel lines of material 34, 36 according to whether the bag is used in maximum volume mode when it is generally parallelepiped, or collapsed to a reduced volume by everting the corners and fixing each portion 36 to an adjacent patch 38.



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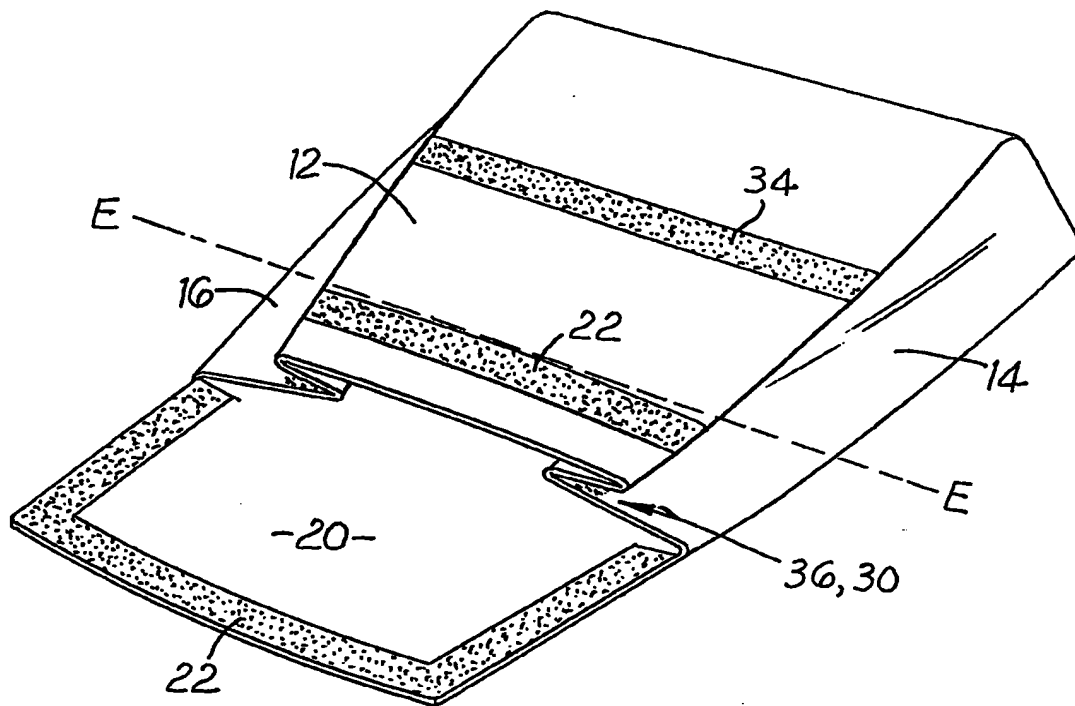


Fig. 3

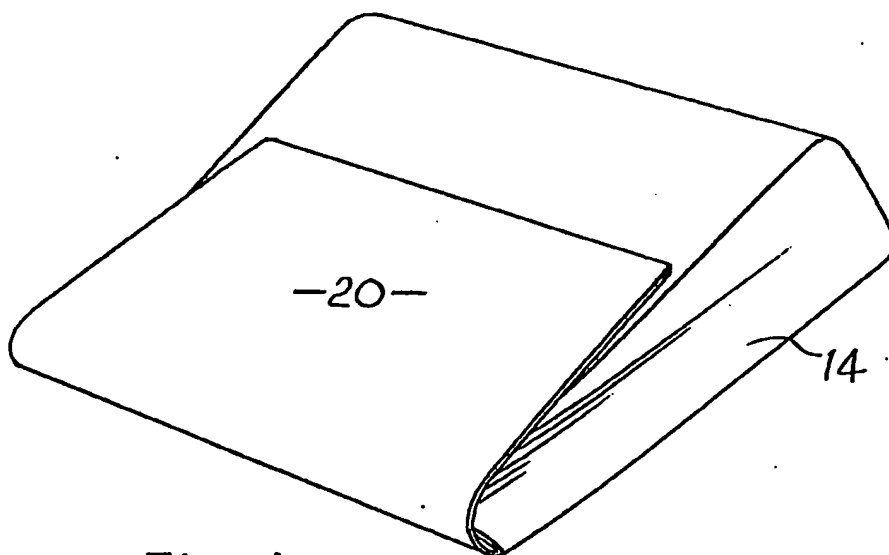


Fig. 4

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Fig. 5

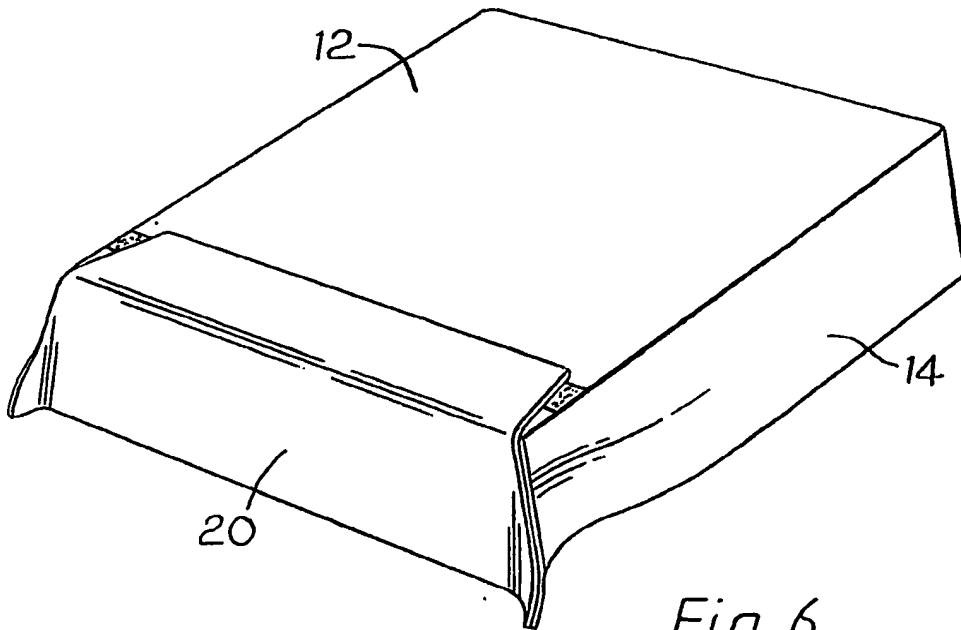
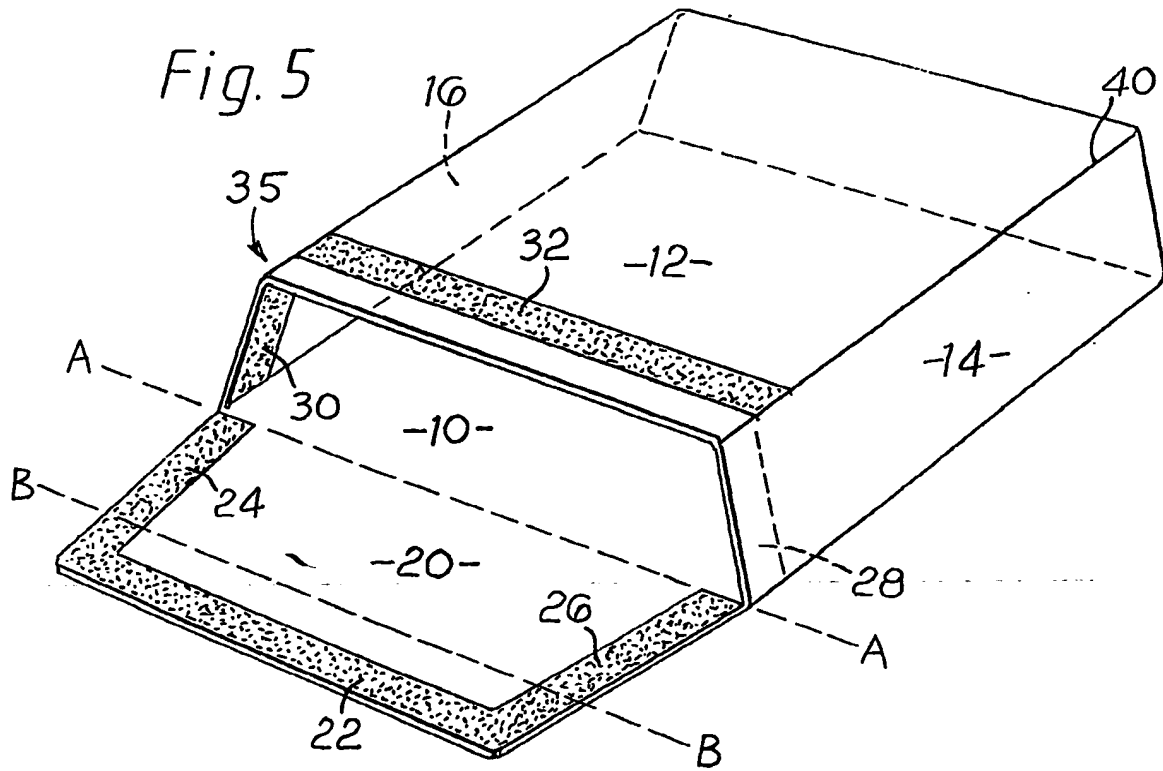


Fig. 6

INSULATED BAG

This invention relates to thermally insulated bags primarily for transporting hot food. A known bag is generally of parallelopiped shape with top and bottom walls, two side walls, an end wall, and a closure flap integral with the bottom wall to extend parallel to the end wall and to be folded onto the top wall where it is secured by Velcro (RTM) patches. The bag is made from a woven material in two layers with insulation therebetween. Steam and food vapours are vented from the bag so as to prevent the food degrading or spoiling whilst stored in the bag, by making the flap of Vee shape or truncated Vee shape so that generally triangular vents exist between the lateral edges of the flap and the adjacent end edges of the side walls when the bag is closed.

The object of the invention is to provide improvements.

In accordance with the invention a thermal insulating bag is made from porous fabric(s) allowing complete closure of the bag and venting through the pores of the fabric. Improved heat retention and also security against ingress of spoilage organisms in use is thereby afforded.

Preferably the bag is lined with a close woven fine fabric coated with a synthetic resinous material on its face which in use is adjacent the food or other contents, for easy cleaning. Polyurethane, which is available in food grades, is suitable. Such coating does not interfere with the breathability, that is does not destroy porosity if suitably applied. Suitable materials of this kind are commercially available from many suppliers.

Preferably the bag is made of two layers with insulation therebetween, and the outer layer, which may be a coarser abrasion resistant and hardwearing fabric is

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also coated with polyurethane or like on its inner face, that is the face adjacent the insulation. This is to serve as a barrier against ingress of moisture, spillages and the like.

Suitable insulation materials for location between the two layers may be loose fibres, wadding, felt, shaped insulant pieces or pre-quilted insulation for example.

According to an important feature of the invention the bag is designed and adapted for closure and sealing in either of two modes namely a minimum use or a maximum use mode. To this end the bag may be trapezium shaped in transverse section when in the erected state. Then, in the minimum use mode, side walls of the bag next to the mouth of the bag may be pleated into a Vee configuration with the apices internally directed to reduce the cross section and in effect near-close the mouth. This is facilitated, according to an aspect of the invention, by appropriately located patches or strips of Velcro or like on the side walls which can be stuck together releasably to close the Vee to near parallel condition or released and opened out to a co-planar condition when the bag is in the maximum use mode.

Two presently preferred embodiments of the invention are now more particularly described with reference to the accompanying drawings wherein:-

Figure 1 is a perspective view of a first bag;

Figure 2 is a fragmentary view of the same in maximum mode position for use, and

Figure 3 shows a part-closed position in minimum mode;

Figure 4 shows the fully closed position in minimum volume mode;

Figure 5 is a view similar to Figure 1, but of the second embodiment; and

Figure 6 is a view similar to Figure 2 of the second embodiment.

The bag shown in Figures 1-4 of the drawings has two layers of fabric with insulant therebetween as mentioned.

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All seams are sewn. As seen in Figure 1, base 10 is rectangular, top 12 is similar but narrower, and side walls 14, 16 are also rectangular. End wall 18 is trapezium shaped. Flap 20 is rectangular and has a width equal to the base 10.

Strips of Velcro (RTM) are used for closure and applied at 22,24,26 around the three free edges of the flap as seen in the drawing. Further bands 28,30 of the Velcro are applied to the mouth end of the side wall 14,16 on the inside of the bag.

Two closure bands 32,34 are provided, parallel to the ends of the top, one of these 32 near the mouth and the other 34 about the midpoint of the bag.

Finally two bands 36,38 forming a Vee are applied to the side wall and top next to the mouth, on each of the side walls.

Figure 1 shows the bag in fully erected or maximum contents position. Closure is effected by folding the flap 20 about line A-A so that it extends normally of the base, then again about the line B-B so that the portion between B-B and the free end edge of the flap overlies the top 12. Velcro patches 22, 32 are stuck together for sealing. The flap is then dished inwardly of the bag and the side walls 14,16 similarly so that the patches 24,30 can be stuck together as can patches 26,28. This completes the sealing and leaves no vents at the mouth. Effectively the dishing takes the Velcro areas from a position about 180 deg. from the remainder of the flap or side wall as the case may be (that is coplanar) to a position 135 deg. related and thus brings the two patches face-to-face.

To convert the bag into the minimum contents position, the seam 40 between the top 12 and the side wall 14 is displaced inwardly, in particular folding side wall 14 about line C-C and top 12 about line D-D. The Velcro patches 36 are effectively swung through near 360 deg. to underlie the top whilst side wall 14 is collapsed onto the base, i.e. swung through 90 deg. as is the opposite side wall. This enables the patches 36,38 to be stuck together at both sides of the bag.

It is to be realised that in practice a double layer

of textile material with possibly bulky insulation therebetween does not fold precisely, and Figure 3 is an approximation of the result at this stage.

Closure, in the minimum mode condition is completed by folding the bag about the line E-E Figure 3 enabling portion 22 to stick to portion 34. The patch 32 assists in this folding since it stiffens the material to which it is sewn, making it unexpectedly easy to fold the considerable number of layers of material at a position relatively close to the free edges of the material at the mouth of the bag, i.e. at the edge of that Velcro remote from the mouth of the bag.

Hence the closure afforded by the patches 22,34 in this case merely serves to hold the fold about line E-E. Sealing of the bag is achieved by that fold which forces the layers of material into close contact one with the other along the line E-E.

The side patches 36,38 could extend further along the side walls than shown but it is found that the bag can be easily reduced in effective volume at the blind end merely by squashing it to expel air, and all that is necessary for the purposes for which these bags are used is the cross sectional area reduction at the mouth end as afforded by the illustrated and described Vee portions 36,38.

Turning now to Figures 5 and 6 the bag shown therein is simplified by eliminating the second closure band 34, and the Vee bands 36,38, otherwise it is identical to that shown in Figures 1-4. The references used in Figures 5 and 6 show the same parts as like references in Figures 1-4.

The bag of Figures 5 and 6 can be closed and sealed in the same way as the maximum volume mode of Figures 1-4, but is not designed to collapse to the minimum volume condition of Figures 3 and 4.

CLAIMS

1. A thermal insulated bag made from porous fabric allowing complete closure of the bag and venting through the pores of the fabric.
2. A thermal insulating bag as claimed in Claim 1 wherein the bag is lined with a close woven fine fabric coated with a synthetic resinous material on its face adjacent the interior.
3. A bag as claimed in Claim 2 wherein the synthetic resinous material is polyurethane in a food grade.
4. A bag as claimed in Claims 1-3 wherein the bag is made of two layers with insulation therebetween, and the outer layer is of a coarser abrasion resistant and hardwearing fabric coated with polyurethane or like on its inner face.
5. A bag as claimed in any of Claims 1-5 which is a generally parallelopiped bag including a base, a pair of side walls extending generally at right angle to the base, a top extending between the side walls, a closure flap extending from one end of said base and an end wall at the opposite end of said base, strips of velcro (RTM) material on the inside faces of said side walls and on the end edges adjacent said closure flap, further strips of said velcro material along the free edges of said closure flap, and a band of said velcro material on the exterior of said top, whereby the closure flap may be folded to extend across the mouth of the bag and further folded to overlies said top, the velcro material along the end edge of the flap cooperating with the strip of velcro material on the outer face of the top to hold the flap closed, and the strips of velcro material on lateral edges of the flap being cooperable with the strips of velcro material on the inside edges of the side walls after deflecting both to further seal the bag.
6. A thermal insulated bag as claimed in Claim 5

further provided with a second band of said velcro material on the outer surface of the top, and said velcro material on the free end edge of the flap being cooperable with either of the bands of velcro material on the top according to whether the bag is erected in a maximum volume state or is collapsed to a minimum volume state, and each of said side wall and top wall being provided with inclined bands of said velcro material converging from end edges of said walls and top adjacent the mouth to a fold line between said side walls and top whereby said fold line may be everted and said velcro material secured together to reduce the cross sectional area of the mouth of the bag and reduce the volume of the bag.

7. A thermal insulating bag arranged and adapted to be erected to full volume condition or reduced to a lesser volume condition and provided with patches and strips of velcro material which are selectively cooperable to close and seal the bag in either of said conditions.

8. A thermal insulating bag substantially with reference to Figures 1-4 or Figures 5 and 6 of the accompanying drawings.

Patents Act 1977

Examiner's report to the Comptroller under

Sectio. 17 (The Search Report)

Application number

9208227.0

Relevant Technical fields

- (i) UK Cl (Edition K) F4U (U52B, U52D)
- (ii) Int CL (Edition 5) F25D 3/08 B65D 81/38

Search Examiner

ALEXANDER G SMITH

Databases (see over)

- (i) UK Patent Office
- (ii) ONLINE DATABASE(S) : WPI

Date of Search

24 JUNE 1992

Documents considered relevant following a search in respect of claims

1-6, 8

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2155168 A (MAYFLOWER PRODUCTS LTD (UK)) (see Figure 5	1
X	GB 1314020 (DODD)	1
X	GB 0784050 (COCA COLA Gmbh) - (see lines 65-67 on page 2)	1
X	US 4802233 (SKAMSER) - (see lines 44-58 in Column 2, Figure 1 and Figure 5)	1,4,5,6
X	US 4578814 (SKAMSER) - (see lines 34-49 in Column 2, Figure 1 and Figure 5)	1,4,5,6

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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